

## **REMARKS/ARGUMENTS**

The Applicant originally submitted Claims 1-35 in the application. In the present response, the Applicant has amended Claims 1-3, 12-14 and 25-27 and added independent Claims 36-38. No other claims have been amended, added or canceled. Accordingly, Claims 1-38 are currently pending in the application.

### **I. Formal Matters and Objections**

The Examiner has objected to the drawings because reference number “130” is not shown in Figure 3. In response, the Applicant has added the reference number “130” to Figure 3 as illustrated in Replacement Sheet 2/4. Additionally, the Applicant has corrected reference numbers in Figure 2 as illustrated in Replacement Sheet 1/4. Accordingly, the Applicant respectfully requests the Examiner to withdraw the objection of the drawings.

### **II. Rejection of Claims 2-3, 13-14 and 26-27 under 35 U.S.C. §112**

The Examiner has rejected Claims 2-3, 13-14 and 26-27 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention. More specifically, the Claims 2-3, 13-14 and 26-27 lack an antecedent basis. In response, the Applicant has amended Claims 2-3, 13-14 and 26-27 to correct this inadvertent error. Accordingly, the Applicant respectfully requests the Examiner to withdraw the §112, second paragraph, rejection of Claims 2-3, 13-14 and 26-27 and allow issuance thereof.

### **III. Rejection of Claims 1-5, 10-11, 25-29 and 34-35 under 35 U.S.C. §102**

The Examiner has rejected Claims 1-5, 10-11, 25-29 and 34-35 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,515,629 to Kuo, *et al.* The Applicant respectfully disagrees since Kuo does not teach a dual-band antenna including an inverted F antenna printed circuit on a substrate and a monopole antenna printed circuit on the substrate having a single ground path including a portion of the inverted F antenna printed circuit as recited in independent Claims 1 and 25.

Kuo is directed to a dual-band inverted-F antenna that can be operated in two separate bands. (*See* column 3, lines 3-9.) Kuo discloses such a dual-band inverted-F antenna having two metal lines 40, 42, a feeding metal line 60 providing signals to the metal lines 40, 42, and a connecting line 26 used to connect the metal lines 40, 42, to a shorting pin 22. (*See* column 3, lines 3-9 and Figures 1-2.) The dual-band inverted-F antenna, however, does not have a monopole antenna printed circuit on a substrate having a single ground path including a portion of an inverted F antenna printed circuit as recited in independent Claims 1 and 25. On the contrary, Kuo discloses the metal lines 40, 42, of the dual band inverted-F antenna have multiple paths to ground. As illustrated in Figure 1, each of the metals lines 40, 42, are directly connected to the connecting line 26 **and** indirectly connected to the connecting line 26 through the feeding metal line 60 and a portion of the other metal line, 40 or 42, respectively. (*See* Figure 3.) The connecting line 26 is then connected to the shorting pin 22 connected to the ground plane 20. (*See* column 3, lines 3-29 and Figures 1-2.) Kuo, therefore, does not teach a dual-band antenna including an inverted F antenna printed circuit on a substrate and a monopole antenna printed

circuit on the substrate having a single ground path including a portion of the inverted F antenna printed circuit as recited in independent Claims 1 and 25.

Since Kuo does not teach each and every element of independent Claims 1 and 25, Kuo does not anticipate Claims 1 and 25 and Claims dependent thereon. Accordingly, the Applicant respectfully requests the Examiner to withdraw the §102 rejection with respect to Claims 1-5, 10-11, 25-29 and 34-35 and allow issuance thereof.

Furthermore, addressing new Claim 36, Kuo does not teach a dual-band antenna having a feed line located on a different plane of a substrate from a radiator of an inverted F antenna printed circuit. Instead, Kuo teaches the metal lines 40, 42, and the feeding metal line 60 are all on the same plane. (*See* column 3, lines 3-8 and Figures 1- 2.) Thus, Kuo also does not teach each element of new independent Claim 36.

Regarding new independent Claim 37, Kuo does not teach a dual-band antenna including a feed line located on one surface of a substrate and a conductive interconnection coupling the feed line to a radiator of the inverted F antenna printed circuit located on an opposing surface of the substrate. Instead, as noted above with respect to Claim 36, Kuo teaches the feeding metal line 60 and the metal lines 40, 42 of a dual-band antenna are on the same plane of a substrate. (*See* Figure 2.) Thus, Kuo also does not teach each element of new independent Claim 37.

#### **IV. Rejection of Claims 6-10 and 30-33 under 35 U.S.C. §103**

The Examiner has rejected Claims 6-10 and 30-33 under 35 U.S.C. §103(a) as being unpatentable over Kuo in view of either U.S. Patent No. 6,100,848 to Hayes (*for* Claims 6-8 and 30-32) or either U.S. Patent No. 6,567,048 to McKinzie, III, *et al.* or U.S. Patent Publication No.

2002/0004125 by Ostrovsky (*for* Claims 9 and 33). As discussed above, Kuo does not teach a dual-band antenna including an inverted F antenna printed circuit on a substrate and a monopole antenna printed circuit on the substrate having a single ground path including a portion of the inverted F antenna printed circuit as recited in independent Claims 1 and 25. Additionally, Kuo does not suggest each and every element of Claims 1 and 25 since Kuo teaches providing multiple ground paths for the metal lines of the dual band inverted-F antennas. (*See* column 3, lines 3-8 and Figures 1-2.) Kuo, therefore, does not teach or suggest each and every element of independent Claim 1 and 25.

The Applicant does not find where Hayes, McKinzie or Ostrovsky cures the above deficiency of Kuo. Hayes is directed to printed monopole antennas associated with two frequency bands. (*See* column 1, lines 12-21.) McKinzie is directed to dielectric materials that can be used as a microstrip patch antenna substrate. (*See* column 2, lines 43-46.) Ostrovsky is directed to low loss materials for the manufacture of PCBs and antenna boards. (*See* paragraph 2, page 1.) Additionally, Hayes, McKinzie or Ostrovsky have not been cited to cure the deficiency of Kuo but to teach the subject matter of the above-identified dependent claims. Therefore, the cited combination of Kuo with either Hayes, McKinzie or Ostrovsky does not teach or suggest each and every element of independent Claims 1 and 25 and Claims dependent thereon. Thus, the cited combination of Kuo with either Hayes, McKinzie or Ostrovsky does not provide a *prima facie* case of obviousness for Claims 6-10 and 30-33 which depend on independent Claims 1 or 25, respectively. Accordingly, Claims 6-10 and 30-33 are not unpatentable over the cited combinations. As such, the Applicant respectfully requests the Examiner to withdraw the §103 rejection of Claims 6-10 and 30-33 and allow issuance thereof.

Furthermore, regarding new Claim 38, the Applicants do not find where the cited combinations teach or suggest a dual band antenna including a monopole antenna printed circuit tuned to a second frequency having a first trace directly coupled to a second trace and each trace tuned to differing resonance in the second frequency band. The Examiner asserts that Hayes discloses a monopole antenna printed circuit having a first and second trace. (*See* Examiner's Action, page 5 addressing dependent Claim 7.) The traces of Hayes, however, are not directly coupled. Thus, the cited combinations also do not teach or suggest each element of new independent Claim 38.

#### **V. Rejection of Claims 12-16 and 21-24 under 35 U.S.C. §103**

The Examiner has rejected Claims 12-16 and 21-24 under 35 U.S.C. §103(a) as being unpatentable over Kuo in view of either U.S. Patent Publication No. 2003/0001787 by Clifton or U.S. Patent Publication No. 2003/0207668 by McFarland, *et al.* The Applicant respectfully disagrees.

As discussed above regarding independent Claims 1 and 25, Kuo does not teach or suggest a dual-band antenna including an inverted F antenna printed circuit on a substrate and a monopole antenna printed circuit on the substrate having a single ground path including a portion of the inverted F antenna printed circuit as also recited in independent Claim 12. Clifton and McFarland have not been cited to cure this deficiency of Kuo but to teach wireless networking circuitry. (*See* Examiner's Action, page 7.) Additionally, the Applicant does not find where Clifton or McFarland cure the above deficiency of Kuo. Clifton is directed to an antenna switch and a method of providing a radio frequency signal to an antenna switch. (*See* paragraph 2, page 1.) McFarland is

directed to wireless devices and access systems including a dual frequency wireless LAN device. (See paragraph 3, page 1.) Therefore, the cited combination of Kuo with either Clifton or McFarland does not teach or suggest each and every element of independent Claim 12 and Claims dependent thereon. Thus, the cited combination of Kuo with either Clifton or McFarland does not provide a *prima facie* case of obviousness for Claims 12-16 and 21-24. Accordingly, 12-16 and 21-24 are not unpatentable over the cited combinations. As such, the Applicant respectfully requests the Examiner to withdraw the §103 rejection of Claims 12-16 and 21-24 and allow issuance thereof.

## **VI. Rejection of Claims 17-20 under 35 U.S.C. §103**

The Examiner has rejected Claims 17-20 under 35 U.S.C. §103(a) as being unpatentable over Kuo in view of either Clifton or McFarland and in further view of Hayes (*for* Claims 17-19) or either McKinzie or Ostrovsky (*for* Claim 20). As discussed above, the cited combinations of Kuo with either Clifton or McFarland does not teach or suggest a dual-band antenna including an inverted F antenna printed circuit on a substrate and a monopole antenna printed circuit on the substrate having a single ground path including a portion of the inverted F antenna printed circuit as recited in independent Claim 12. Additionally discussed above, the cited combinations of Kuo with Hayes, McKinzie or Ostrovsky do not teach or suggest a dual-band antenna including an inverted F antenna printed circuit on a substrate and a monopole antenna printed circuit on the substrate having a single ground path including a portion of the inverted F antenna printed circuit as recited in independent Claim 12. Furthermore, based on the above arguments, the cited combinations of Kuo with either Clifton or McFarland in view of Hayes, McKinzie or Ostrovsky does not provide a *prima facie* case of obviousness for Claims 17-20 which depend on independent

Claim 12. Accordingly, Claims 17-20 are not unpatentable over the cited combinations. As such, the Applicant respectfully requests the Examiner to withdraw the §103 rejection of Claims 17-20 and allow issuance thereof.

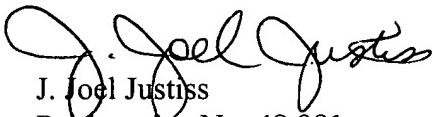
## VII. Conclusion

In view of the foregoing amendment and remarks, the Applicant now sees all of the Claims currently pending in this application to be in condition for allowance and therefore earnestly solicits a Notice of Allowance for Claims 1-38.

The Applicant requests the Examiner to telephone the undersigned attorney of record at (972) 480-8800 if such would further or expedite the prosecution of the present application. The Commissioner is hereby authorized to charge any fees, credits or overpayments to Deposit Account 08-2395.

Respectfully submitted,

HITT GAINES, PC



J. Joel Justiss  
Registration No. 48,981

Dated: 8/18/05

P.O. Box 832570  
Richardson, Texas 75083  
(972) 480-8800